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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,049	09/10/2003	Max Andrew Little	7220-X03-054	3260
40032	7590	09/22/2005	EXAMINER	
SELLERS, DANIEL R				
ART UNIT		PAPER NUMBER		
2644				

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,049	LITTLE, MAX ANDREW	
	Examiner Daniel R. Sellers	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 July 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-12, 14 and 15 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 September 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the United Kingdom on 10th of March, 2001. It is noted, however, that applicant has not filed a certified copy of the 0105975.7 application as required by 35 U.S.C. 119(b).
2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed Internationally on 6th of March, 2002. It is noted, however, that applicant has not filed a certified copy of the PCT/GB02/00987 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. The phrase "substantially as shown" fails to limit the scope of the claim. Step "c" of claim describes a transfer function "substantially as shown."

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-7, 9-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Cool Edit User's Manual by Syntrillium Software for release versions 1.53 and 95 (hereinafter Cool Edit) in view of the admitted prior art.

7. Regarding claim 1, see Cool Edit

A method of modifying low frequency components of a digital audio signal having left and right channel signals, the method comprising the steps of:

a) filtering the left and right channels signals using respective left and right high-pass filters to form left and right high-pass filtered signals; (Page 22, Edit Left/Right section and Pages 34-35, Filter section)

b) filtering the left and right channel signals using respective left and right band-pass filters to form left and right low frequency signals;

c) modifying the amplitude of the left and right low frequency signals to give modified left and right low frequency signals whereby signals with amplitude a where $0 < a < a_1$ are amplified by a first constant value C_1 , signals with amplitude $a_1 \leq a \leq a_2$ are amplified proportional to $1/a$, signals with amplitude $a = a_2$ are unchanged, signals with amplitude $a_2 < a < a_3$ are attenuated proportional to $1/a$, and signals with amplitude $a = a_3$ are attenuated by a second constant value C_2 ; and (Pages 27-28, Compressor section)

d) combining the modified band-pass filtered left and right signals with the respective left and right high-pass filtered signals to form respective modified left and right channel audio signals. (Page 10, The Cool Edit Paradigm, second paragraph and Page 27, Channel Mixer section)

Cool Edit teaches the features in this method. The filter module of the software program can perform low-pass, band-pass, and high-pass filtering functions with different user input. Cool Edit does not teach the method, which comprises the individual steps a-d, but teaches the individual features. The background of the application discloses seven design constraints (c1-c7) for proper processing of bass signals. The background also asserts that Aphex Systems Ltd. fails to adhere to constraints c4 and c7. It would have been obvious for one of ordinary skill in the art to combine the teachings of Cool Edit and the admitted prior art for the purpose of bass enhancement.

8. Regarding claim 2, the further limitation of claim 1, see Cool Edit

... wherein in step c), the amplitude a of the signal is taken to be the amplitude of the left or right low frequency signal which has the largest absolute value. (Page 28, Joint Channels section)

Cool Edit teaches this feature when dynamically compressing or expanding a stereo signal.

9. Regarding claim 3, the further limitation of claim 2, see the preceding argument with respect to claim 1. In the invert section of page 28, Cool Edit teaches the graph has a Cartesian coordinate system of -100,-100 to 0,0. This corresponds to a controllable range from -100dB to 0dB, which includes a value of 12.5.

10. Regarding claim 4, the further limitation of claim 1, see the preceding argument with respect to claim 3. Cool Edit teaches a value of 0.5

11. Regarding claim 5, the further limitation of claim 1, see the preceding argument with respect to claim 3. The input level along the x-axis, as taught by Cool Edit, includes the range -100dB to 0dB. This includes the value 0.04, wherein a signal referenced at -100dB is one-trillionth the size of one at 0dB.

12. Regarding claim 6, the further limitation of claim 1, see the preceding argument with respect to claim 5. Cool Edit teaches a value of 0.5.

13. Regarding claim 7, the further limitation of claim 1, see the preceding argument with respect to claim 5. Cool Edit teaches a value of 1.

14. Regarding claim 9, the further limitation of claim 1, see Cool Edit

... wherein the digital audio signal is in WAV format. (Page 17, WAV sections)

Cool Edit teaches the use of several variations of WAV files.

15. Regarding claim 10, the further limitation of claim 1, see the preceding argument with respect to claim 1. Cool Edit teaches fully customizable filter parameters for band-pass filters.
16. Regarding claim 11, the further limitation of claim 1, see the preceding argument with respect to claim 1. Cool Edit teaches fully customizable filter parameters for high-pass filters.
17. Regarding claim 12, the further limitation of claim 1, see the preceding argument with respect to claim 1. Cool Edit teaches fully customizable limiter that can have the transfer function as shown.
18. Regarding claim 14, the further limitation of claim 1, see the preceding argument with respect to claim 1. Cool Edit teaches the use of digital filters.

19. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cool Edit and the admitted prior art as applied to claim 1 above, and further in view of Cool Edit 2000 webpage advertisement by Syntrillium Software Corp. (hereinafter Cool Edit 2000)..
20. Regarding claim 8, the further limitation of claim 1, see Cool Edit 2000
... wherein the digital audio signal is an MP3 encoded signal.
Cool Edit 2000 is the successor to Cool Edit 96, which is the successor of Cool Edit 95. The features pointed to in the manual of Cool Edit 95 have been added to and improved upon for this newer release of substantially the same program. The newer features described teach that Cool Edit 2000 reads and writes MP3 encoded signals. It would

have been obvious for one of ordinary skill in the art to combine the teachings of Cool Edit, the prior art, and Cool Edit 2000 to provide playback of a popular audio encoding.

21. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cool Edit and the admitted prior art as applied to claim 1 above, and further in view of Werrbach, U.S. Pat. No. 5,359,665.
22. Regarding claim 15, the further limitation of claim 1, see the preceding argument with respect to claim 1. The combination of Cool Edit and the prior art teach the features of claim 1, but Cool Edit only discusses FIR filters and not the other choice IIR. The previous combination is also silent on which type of filter is used (i.e. Butterworth, Chebyshev, Optimal, etc...). Werrbach teaches low bass frequency enhancement that employs a Sallen-Key lowpass filter to isolate the low frequencies. A Sallen-Key is a filter that has a Butterworth, or maximally flat, response. This type of filter is also an analog filter, which inherently is IIR (Col. 2, lines 32-34). It would have been obvious for one of ordinary skill in the art to combine the teachings of Cool Edit, the admitted prior art, and Werrbach for the purpose of saving computational or processing time. It is well-known that an IIR filter is easier to implement than an equivalent FIR filter, but IIR filters can be less stable than their equivalent counterpart.

Response to Arguments

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 571-272-7528. The examiner can normally be reached on Monday to Friday, 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRS


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9/19/05